

REMARKS

Claims 1-8 are pending in this application, with claims 1, 7 and 8 being amended.

Rejection of Claims 1-3 and 5-8 under 35 USC § 102(e)

Claims 1-3 and 5-8 are rejected under 35 USC 102(e) as being anticipated by Chen et al. (U.S. Patent No. 6,259,741) for the reasons set forth in the Office Action.

The present invention provides a process for the format conversion of an image sequence employing video data coded on the basis of a structure of pixel groups comprising a first step for decoding the coded data and a second step of converting the decoded data. For a pixel group to be converted, if the decoding mode is of the "inter" type with no residue, the conversion is performed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with the coded pixel group. Independent claims 1, 7 and 8 each include similar limitations to those discussed above.

The present invention, as claimed in claims 1, 7 and 8, skips the conversion step for certain specific blocks instead of implementing a decoding and a conversion of all the blocks of a source image. If the mode of the coding used is of the inter type with no residue. The present invention substitutes the conversion step with a "copy of a converted pixel group of a preceding image."

Chen et al. describe a system for converting the color format of a digital video bistream. Chen et al. convert MPEG-2, 4:2:2 profile bit streams into main profile bit streams. The Office Action asserts that Chen et al. teach the determination of coding mode is done in that intra-coding or inter-coding are the two coding modes used, as illustrated in Figure 3, thus disclosing "the conversion is performed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with

CUSTOMER NO.: 24498

PATENT

Serial No.: 09/924,322

PF000079

said coded pixel group” as recited in claim 1 of the present invention. The Office Action further contends that, in Chen et al., “switch 325 is activated to let the image data go through to the adder 330, and that the switch 327 is activated to let the image data to go through adder 345 for performing the conversion by copying a converted pixel group of a preceding image.” A group of pixels of a preceding image is copied through adder 330 for the inter decoding. However, unlike the present claimed invention, in Chen et al. inverse quantizer 310, chroma MC (2) 325, and adders 315 and 330 relate to data decoding, and have nothing to do with format conversion. Additionally, the copied preceding image is one that has been decoded as opposed to one that has been converted. Consequently, switch 325 doesn’t disclose a copy of a converted pixel group as in the present claimed invention. Moreover, switch 327 in Chen et al. is utilized to subtract a block of a previously reconstructed image from a converted current image block. There is no indication, however, of this block being a copy of a previously reconstructed image. Thus, Chen et al. neither disclose nor suggest “the conversion is performed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with said coded pixel group,” as recited in the present claimed invention. To copy a group of pixels as in the present claimed invention is not the same as subtracting a group of pixels as in Chen et al. As mentioned in the previous response, coding modes and motion vectors in Chen et al. are used in coding the image to the converted format and not actually used to convert the format of the image sequence as in the present invention. Coding of the image into the converted format as disclosed by Chen et al. is not the subject of the present invention.

The conversion process in Chen et al. corresponds to filter 340 and is processed the same way for the entire image. If the present claimed invention were to be applied to Chen et al. for a coded pixel group, each time the coding mode is of the “inter” type with no residue, the filter would be replaced by a means for copying a block of a previously converted image, thereby bypassing the conversion of the coded pixel group. Furthermore, column 11, lines 34-39 of Chen et al. describe a “filter which includes a field-based vertical filter and a 2:1 vertical downsampling filter.” “The filtered current image data, having the 4:2:0 color format is provided to the adder,” as

CUSTOMER NO.: 24498

PATENT

Serial No.: 09/924,322

PF000079

described in Chen et al. in column 11, lines 65-66, clearly shows that the input signal of the adder has already been converted. Consequently, the adder is not used for this conversion. The structure incorporating the adder 345, the DCT (350), the quantizer (355), the inverse quantizer (360), the inverse DCT (365) is known by one skilled in the art of MPEG coding. One skilled in the art also knows that the adder involved with the compression of the image using inter coding mode, but is not involved in a conversion process. Thus, it is further shown that Chen et al. neither disclose nor suggest “the conversion is performed by a copy of a converted pixel group of a preceding image linked by the motion vector associated with said coded pixel group,” as recited in claim 1 of the present invention

The Office Action further states that switches are activated to let the image data go through adder 345 for performing the conversion by copying a converted pixel group of a preceding image. However, the adder in Chen et al. is utilized to perform the coding of the converted image to get compressed data. The adder does not actually convert the image. Adder 345 performs the inter/intra coding which is used for compressing the already converted format. Furthermore, column 11, lines 65-66 in Chen et al. states that “the filtered current image data, having the 4:2:0 color format is provided to the adder”, clearly showing that the image at the input of the adder is already converted. Therefore, Chen et al. neither disclose nor suggest the “process for the format conversion of an image sequence employing video data coded on the basis of a structure of pixel groups comprising a first step for decoding the coded data and a second step of conversion of the decoded data” as in the present claimed invention. Rather, Chen et al. disclose a copy of pixels in a previously converted image prior to coding of the image in its already converted form. This is wholly unlike the present claimed invention whereby a copy of pixels in a previously converted image is converted to a new format.

Regarding claims 7 and 8, the arguments presented above regarding claim 1 are applicable to both of claims 7 and 8. Specifically, in claim 7 “the conversion is performed by a copy of converted pixel group of a preceding image linked by the

CUSTOMER NO.: 24498

Serial No.: 09/924,322

PATENT

PF000079

motion vector associated with said coded pixel group”. Claim 8 of the present invention discloses that the “pixel group for the converted image of given resolution is obtained from a group of converted pixels of the image of lower resolution”. These methods of conversion are unlike the method of conversion described by Chen et al. in which a copy of pixels in a previously converted image prior for coding of the image in its already converted form, not converting the format of an image sequence as in the present claimed invention.

In view of the above remarks, it is respectfully submitted that there is no 35 USC 112 enabling disclosure provided by Chen et al. that anticipates the present invention as claimed in claims 1, 7 and 8. As claims 2-3 and 5-6 are dependent on claim 1, it is respectfully submitted that claims 2-3 and 5-6 are patentable for the same reasons discussed hereinabove with respect to claim 1. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

Rejection of Claim 4 under 35 USC 103(a)

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (U.S. Patent No. 6,259,741) in view of Kato (U.S. Patent No. 5,701,164) for the reasons set forth in the Office Action.

Claim 4 provides a process wherein the data are coded according to the MPEG standard, the pixel group is a macroblock and said coding mode is determined from the “skipped macroblock” or “uncoded” mode. As discussed above regarding claim 1, Chen et al. neither disclose nor suggest a “process for the format conversion of an image sequence employing video data coded on the basis of a structure of pixel groups comprising a first step for decoding the coded data and a second step of conversion of the decoded data” as claimed in claim 1 of the present invention.

Kato discloses a difference vector determination element used in an apparatus for coding motion vector includes register memories (PMV) of which number is equal

CUSTOMER NO.: 24498

Serial No.: 09/924,322

PATENT

PF000079

to sum of maximum transmission numbers N and M of forward predictive and backward predictive motion vectors. However, similarly to Chen et al., Kato neither discloses nor suggests a “process for the format conversion of an image sequence employing video data coded on the basis of a structure of pixel groups comprising a first step for decoding the coded data and a second step of conversion of the decoded data” as claimed in claim 1 of the present invention.

Furthermore, there is no reason or motivation to combine Chen et al. and Kato. Chen et al. is concerned with converting the color format of a digital video bitstream while Kato is concerned with vector determination in an apparatus for coding motion vector including register memories of which number is equal to sum of maximum transmission numbers of forward and backward predictive motion vectors. Even if one were to combine the system disclosed by Chen et al. with the system disclosed by Kato, this combination would produce a system that uniformly filters data over the entire image and codes the data that corresponds to the converted format having a difference vector determination element. However, the format conversion that is performed in the systems of Chen et al. and Kato when taken alone or in combination neither discloses nor suggests a “process for the format conversion of an image sequence employing video data coded on the basis of a structure of pixel groups comprising a first step for decoding the coded data and a second step of conversion of the decoded data” as in the present claimed invention. Thus, it is respectfully submitted that a system produced by combining the system disclosed by Chen et al. with the system disclosed by Kato would not produce the system as claimed in claim 1 of the present invention and, as claim 4 is dependent on claim 1, the combination would not produce the system as claimed in claim 4 of the present invention.

In view of the above remarks, it is respectfully submitted that Kato when taken alone or in combination with Chen et al. does not make the present invention as claimed in claim 1 unpatentable. As claim 4 is dependent on claim 1, it is respectfully submitted that claim 4 is patentable for the same reasons as discussed above with

CUSTOMER NO.: 24498

Serial No.: 09/924,322

PATENT

PF000079

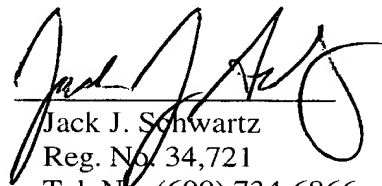
respect to claim 1. Thus, it is further respectfully submitted that this rejection has been satisfied and should be withdrawn.

Having fully addressed the Examiner's rejections, it is believed that, in view of the preceding amendments and remarks, this application stands in condition for allowance. Accordingly then, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the applicants' attorney at the phone number below, so that a mutually convenient date and time for a telephonic interview may be scheduled.

No fee is believed due with this response. However, should a fee be due, please charge the additional fee to Deposit Account 07-0832.

Respectfully submitted,
Edouard Francois

By:


Jack J. Schwartz
Reg. No. 34,721
Tel. No. (609) 734-6866

Thomson Licensing Inc.
Patent Operations
P.O. Box 5312
Princeton, NJ 08543-5312
July 26, 2005

CUSTOMER NO.: 24498
Serial No.: 09/924,322

PATENT
PF000079

CERTIFICATE OF MAILING under 37 C.F.R. §1.8

I hereby certify that this amendment is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

Date: July 26, 2005

Lorin Klewri